History Of Batteries A Timeline

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The battery is one of the most important man-made inventions all throughout history. Today, it is generally used as a portable source of power, but in the past, batteries were our only source of electricity. Without its conception, modern comforts such as computers, vehicles and communication devices may not have been possible.

The journey which lead to the creation of the battery as we know it today involved one invention after another. Take a look at the historical timeline of the battery and how ideas for this development came to be.

A Liverpool-based instrument maker, John Dancer, used the design of the Daniell Cell. This battery was composed of a central zinc anode soaked into an earthenware vessel containing a solution of zinc sulfate. The porous earthenware pot is immersed in a solution of copper sulfate contained inside a copper can. The copper can acts as the cell’s cathode. Ions pass through the porous barrier but the solutions are kept from mixing together.

French scientist Georges Leclanch? invented a battery composed of a zinc anode with a manganese dioxide cathode wrapped inside a porous material. The cell made use of an ammonium chloride solution as the electrolyte. With carbon mixed into the manganese dioxide cathode, this battery presented faster absorption and longer shelf life. Leclanch? improved this battery by substituting the liquid electrolyte into a pastier version, which resulted in the creation of the first dry cell battery. It could be used in different orientations and transported without spilling.

Another version of dry cell was invented by Carl Gassner, who obtained a German patent on a variant of the Leclanch? battery. Gassner made use of Plaster of Paris to create the ammonium chloride paste, mixed with a small amount of zinc chloride in order to prolong the battery’s shelf life. As a result, the battery offered a more solid design and provided 1.5 volts in full use. Gassner obtained a US Patent for this battery in 1887. Gassner’s idea paved the way for the first mass-centric battery, powering portable electrical devices.

Waldermar Jungner, a scientist hailing from Sweden, has invented the first nickel-cadmium battery (NiCD). This is a rechargeable battery containing nickel and cadmium electrodes soaked in a potassium hydroxide solution. It is the first battery to make use of an alkaline electrolyte, which in turn gives it the capability to produce better energy density than the lead-acid battery.

A famous American scientist, Thomas Edison, picked up the nickel-iron cell Jungner designed and created another patented version of it. Edison made use of an alkaline cell with iron as the anode and nickel oxide as the cathode. He also made use of potassium chloride as conductor. The Edison battery was initially aimed for automobiles. However, it found greater use in the industrial and railroad market, being strong enough to

survive overcharged and uncharged periods.

Zinc-carbon batteries were the primary source of energy until the late 1950s. But this battery type offers low shelf life and can easily be discharged. An engineer named Lewis Urry was assigned to find a solution in extending the life of zinc-carbon batteries by the Eveready Battery Company. Urry discovered that making use of alkaline in batteries offers more advantage, supplying greater energy at higher currents compared to the zinc-carbon batteries.

Gilbert Newton Lewis started with the experimentation on lithium batteries but it was not until the latter part of the century that the first lithium batteries became commercially available. Three important developments were vital to the creation of these batteries: the discovery of the LiCoO2 cathode by John Goodenough (1980), the discovery of the graphite anode by Rachid Yazami (1982) and the rechargeable lithium battery prototype produced by Asahi Chemical, Japan. Sony commercialized the lithium ion battery in 1991.